Pre-CERCLIS Screening Assessment

for:

LaSalle Rail Yard/ Illinois & Michigan Canal
LaSalle, Illinois

PREPARED BY:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
DIVISION OF REMEDIATION MANAGEMENT
OFFICE OF SITE EVALUATION

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Section 1.0 Introduction

On September 12, 2005, the Illinois Environmental Protection Agency's (Illinois EPA) Office of Site Evaluation received funding from the United States Environmental Protection Agency (U.S. EPA) Region V to conduct a Pre-CERCLIS Screening Assessment at a rail yard (LaSalle rail yard) and a segment of the Illinois and Michigan Canal (I & M Canal) located in LaSalle, Illinois. The Pre-CERCLIS Screening Assessment is performed under the authority of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) commonly known as Superfund.

A Pre-CERCLIS Screening Assessment is a review of information on potential Superfund sites to determine whether the site should be placed into EPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS). During the Pre-CERCLIS Screening Assessment, data will be collected in order to complete the Pre-CERCLIS Screening Assessment Checklist Form (found in Section 6.0 of the Pre-CERCLIS Report). If there is sufficient information that suggests the site may be impacting human health or the environment, the site will be placed in CERCLIS and will progress through the CERCLA evaluation process.

Section 2.0 Site Background

Section 2.1 Site Description

For an illustration of areas investigated during the Pre-CERCLIS Screening Assessment, see the site location maps (Figures 1 and 2). The investigative areas

occupy portions of Sections 14 and 15, Township 33 North, Range 1 East within LaSalle County. For purposes of the Pre-CERCLIS Screening Assessment Report, the investigative areas include a rail yard and a segment of the I & M Canal. Figure 3 provides an illustration of the investigative area. The following paragraphs will describe each investigative area in greater detail.

Rail Yard

The rail yard encompasses approximately 10 acres and is believed to be owned by the Illinois Central Railroad Company. For reference purposes, a central location in the rail yard corresponds to a latitude of 41^{o} 19' 47.08" and a longitude of 89^{o} 5' 7.95". The rail yard is located less than 1/10 of a mile to the north of the I & M Canal. This property is bordered to the south by Rockwell Road, to the east by Buck Street, to the west by Union Street, and extends just beyond U.S. Route 6 to the north. The rail yard is approximately ½ mile south of the Matthiessen and Hegeler Zinc Company Superfund Site and Carus Chemical Company. The Illinois Cement Company is located less than ¼ mile to the east of the rail yard.

The rail yard is mostly vegetated and its exposed surface consists of mostly slag, cinders, and coal. There is a slight slope of this property toward the south that would facilitate the flow of surface water toward the I & M Canal. Beyond the southern boundary of the rail yard, several culvert pipes travel beneath Rockwell Road, and would appear to provide a route for excess surface water to travel south toward the I & M Canal. The rail yard is elevated approximately 30 feet above the canal. For an illustration of the approximate boundaries of the rail yard, refer to Figure 3.

An estimated 10 residential properties can be found west of the rail yard, beyond Union Street. An additional 5 residential properties are located to the southeast of the property beyond Buck Street.

I & M Canal

The segment within the I & M Canal that will be focused upon during the Pre-CERCLIS Screening Assessment is a 1.3 mile portion located east of Lock 14. The I & M Canal is a man-made water body that runs parallel to the Illinois River and is owned by the Illinois Department of Natural Resources. For location purposes, Lock 14 will be used as a reference point for the I & M Canal. Lock 14 can be found at a latitude of 41^{o} 5' 40.66" and longitude of 89^{o} 19' 35.53".

The width of the canal varies from approximately 200 feet near Lock 14 to approximately 50 feet throughout the remainder of the canal. The canal depth varies from approximately 11 feet near Lock 14 to approximately 2 feet throughout the rest of the canal. Based upon observations made during the investigation, a slight water flow from east to west exists within the canal. Surface water from the canal flows through small openings in Lock 14 into another segment of the I & M Canal just north of Huse Lake.

As previously described, excess surface water from the rail yard is channeled in the direction of Rockwell Road. Culvert pipes located beneath Rockwell Road allows excess surface water to flow from the rail yard to the I & M Canal. The rail yard is located less than 1/10 mile to the north of the I & M Canal. Topographical maps of the area indicate the I & M Canal, near Lock 14, is approximately 20 – 30

feet below the surrounding terrain. This would suggest that excess surface water from the north would readily flow into the canal.

During the Pre-CERCLIS Screening Assessment, several individuals were observed fishing in the I & M Canal. According to these individuals the canal contains a variety of fish species. Conversations with these residents indicate that they consume fish from the canal.

Section 2.2 Site History

Historical Sanborn Fire Insurance Maps (Sanborns) of LaSalle were reviewed that focus upon the rail yard property. Sanborns indicate the rail yard has been an active part of LaSalle since the late 1800's. Coal storage, water storage, rail car repair, and a passenger depot were some of the activities associated with the rail yard from the late 1800's until the 1940's. According to the Sanborns, the Illinois Central Rail Road had an association with the rail yard since the early 1900's. A Sanborn from 1926 indicates that a common rail line connected the rail yard with the Matthiessen & Hegeler Zinc Company. These activities no longer take place on the property, but the tracks do remain active to a limited amount of rail traffic.

Ground was first broken for the ninety-six mile I & M Canal on July 4, 1836. Almost twelve years later, on April 10, 1848, the canal was completed and linked Lake Michigan to the Illinois River at LaSalle. Prominent towns along the canal include LaSalle, Ottawa, Marseilles, Morris, Channahon, Joliet, Lockport, and Lemont. Grain, coal, sugar, molasses, coffee, and lumber were some of the many items hauled along the canal during its early years of operation. Operation of the canal ceased in 1933 following the channelization of the Illinois and DesPlaines

Rivers. In 1984 the United States Congress designated the I & M Canal route part of the National Heritage Corridor. According to the Illinois Department of Natural Resources the canal is currently used for recreational purposes. The Illinois Department of Natural Resources currently owns and maintains the I & M Canal.

Section 3.0 Field Investigation Activities

Section 3.1 Field Investigation

On June 19 – 21, 2006, Illinois EPA's Office of Site Evaluation conducted Pre-CERCLIS Screening Assessment field activities at the LaSalle rail yard and the nearby I & M Canal. The field investigation consisted of the collection of over 140 soil and sediment samples from the rail yard and the canal. The samples were analyzed using a portable X-Ray Fluorescence (XRF) Spectrum Analyzer and a portion of the samples were also submitted to a laboratory for analysis.

Section 3.2 Analytical Data

During the Pre-CERCLIS Screening Assessment 59 soil samples were collected from the rail yard. A total of 94 sediment samples were taken from the 1.3 mile segment of the I & M Canal. Figures 4 through 6 illustrate the location of soil and sediment samples that were collected during the Pre-CERCLIS Screening Assessment. The samples were collected in order to characterize current site conditions and determine if contamination has impacted surrounding human populations and/or ecological targets.

Table 1 contains X-Ray Fluorescence (XRF) results from the I & M Canal. The XRF results from the rail yard are contained in Table 2. Table 3 contains a summary of the laboratory analysis of the sediment samples. A summary of the soil sample laboratory analysis can be found in Table 4. Table 5 contains a summary of soil and sediment samples that received Toxicity Characteristics Leaching Procedure (TCLP) analysis for metals.

The investigation revealed that zinc was a primary contaminant of concern. Figure 7 is an illustration depicting zinc concentrations in the rail yard and the I & M Canal. Figure 7 reveals that the highest concentrations of zinc exist in the rail yard. Concentrations of zinc ranged from below background levels to those exceeding 94,000 ppm. Elevated levels of zinc were also detected within the sediments of the I & M Canal. In the I & M Canal, the highest concentrations of zinc were present near the rail road bridge. Downstream sediment sample locations from the rail road bridge also indicated elevated levels of inorganic contamination.

Although zinc was the primary contaminant of concern, other inorganic contaminants were also found throughout the investigative area. Lead, copper, manganese, and nickel were also found at various locations in the rail yard and the canal.

Section 4.0 Migration Pathways

Section 4.1 Groundwater

An internal file search was conducted to identify groundwater wells located near the investigative area. The City of LaSalle also provided information regarding

groundwater wells in the area. The information suggests there are 11 wells located within ½ mile of the rail yard although not all of them are currently active. The wells draw water from the shallow sand and gravel aquifer and range in depth from 61 – 70 feet. The City of LaSalle utilizes these wells as a drinking water source for approximately 10,000 residents. Representatives from the City of LaSalle do not indicate that metals are a concern in the drinking water wells.

No groundwater samples were collected during the Pre-CERCLIS Screening Assessment.

Section 4.2 Surface Water

The Pre-CERCLIS Screening Assessment evaluates site conditions using the Hazard Ranking System (HRS). Soil sampling in the rail yard revealed elevated levels of zinc, lead, and other inorganic contamination. This upgradient source of soil contamination appears to be contributing to the migration of a hazardous substance toward the I & M Canal.

The in-water segment of the surface water route begins where the contaminated sediments enter the I & M Canal and is designated as the Probable Point of Entry (PPE). The PPE is identified by sediment samples X202, Sed. 13A, and Sed. 13B. The three samples were collected from the same location and revealed similar inorganic contamination to that of the upgradient source (rail yard). These samples also contained levels of contamination significantly above the background sample (Sed. 35A).

From the PPE, surface water flows west for approximately 0.35 miles along the I & M Canal before reaching Lock 14. After Lock 14, surface water continues to

flow into another portion of the I & M Canal for approximately 1.04 miles before emptying into the Illinois River. The 15-mile Target Distance Limit (TDL) is reached within the waters of the Illinois River east of Lost Lake approximately 1.8 miles north of Hennepin, Illinois. A map illustrating the 15-mile surface water route can be found as an attachment to the Pre-CERCLIS Screening Assessment Report.

The Illinois River and I & M Canal are both used as fisheries according to information obtained from local residences and the Illinois Department of Natural Resources. According to file information, there are no known surface water intakes used for drinking within the TDL of the surface water pathway. Federal Emergency Management Agency National Flood Insurance Maps indicate that the I & M Canal is located within the 100 year flood plain. The rail yard is located in an area designated as minimal flooding.

During the Pre-CERCLIS Screening Assessment, sediment samples were collected from the I & M Canal. The sample results indicated that concentrations significantly above background concentrations were present within the sediments of the I & M Canal. The nature of the inorganic contamination can be attributed to surface soil conditions at the rail yard.

Section 4.3 Soil Exposure

The rail yard has been an active part of the LaSalle area since the late 1800's. Past activities in and around the rail yard may have impacted shallow soil conditions. During the Pre-CERCLIS Screening Assessment cinders, slag, and coal

were noted to be present throughout the rail yard. Elevated levels of inorganic contamination were associated with that material.

Soil samples XRF 12, XRF 35, and XRF 55 were used to establish background soil conditions. These three sample locations were composed of similar constituents with other soil samples in the immediate area. When compared to background concentrations, over 50 soil samples revealed inorganic contamination that met observed release criteria. An observed release was obtained if a soil sample contained levels of inorganic contamination at three times background levels. These soil samples were taken from the rail yard and used to delineate an area of approximately 5 acres of contaminated soil. The samples used to determine this area are found within the upper two feet of soil and contain similar contamination. Although the exact source of the contamination is unknown at this time, it is suspected to be linked with past industrial activities within the vicinity.

Due to lack of vegetative cover on the some of the rail yard, the surface may be prone to erosion. There is evidence that suggests shallow soils from the rail yard have migrated toward the south and have impacted the sediments of the I & M Canal. The rail yard is not fenced. The nearest permanent resident is located approximately less than 100 feet to the east of the rail yard.

Using U.S. Geological Survey topographical maps and U.S. Census data, an estimated 8000 people reside within one-mile of the site. A map illustrating the site with 4-mile distance rings can be found as an attachment to the Pre-CERCLIS Screening Assessment Report.

Nearby population within one-mile of the site

Distance (mi)	Population
On-Site	0
0 – ¼ mile	500
¼ - ½ mile	1800
½ - 1 mile	5700

The number of people was calculated using 2.49 people per household in LaSalle County, as established by the U. S. Census Bureau

Section 4.4 Air Route

A portion of the LaSalle Rail Yard lacks vegetative cover. The lack of vegetation may enable particulate material to become suspended in the air during dry periods.

No data was collected during Pre-CERCLIS Screening Assessment activities.

Section 5.0 References

Federal Emergency Management Agency; Flood Insurance Rate Map #170401 0005 B, March 18, 1985

Federal Emergency Management Agency; Flood Insurance Rate Map # 170400 0010 B, August 6, 1982

Illinois Environmental Protection Agency, Bureau of Land, file for Matthiessen & Hegeler Zinc, Co., LPC# 099 030 0031

Ontario Ministry of the Environment, Guidelines for the Protection and Management of Aquatic Sediment Quality in Ontario, 1992

United States Environmental Protection Agency, Office of Solid Waste Emergency Response, ECO Update, Publication 9345.0 – 12FSI, January 1996

United States Environmental Protection Agency, Solid Waste and Emergency Response, PB94-933311, November 1996, Using Qualified Data to Document and Observed Release and Observed Contamination

http://www2.sos.state.il.us/departments/archives/i&mpack/i&mintro.html

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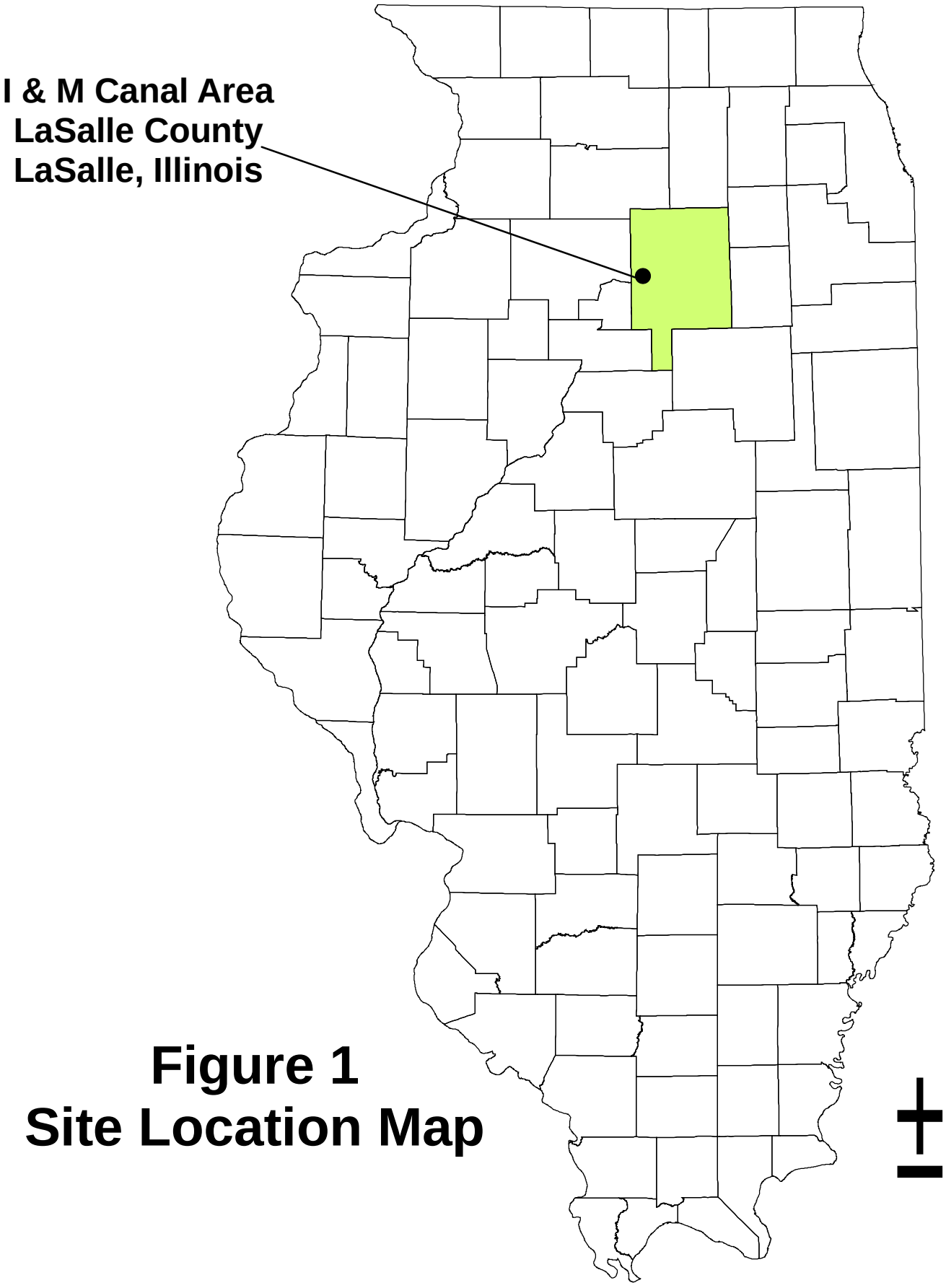


Figure 1
Site Location Map

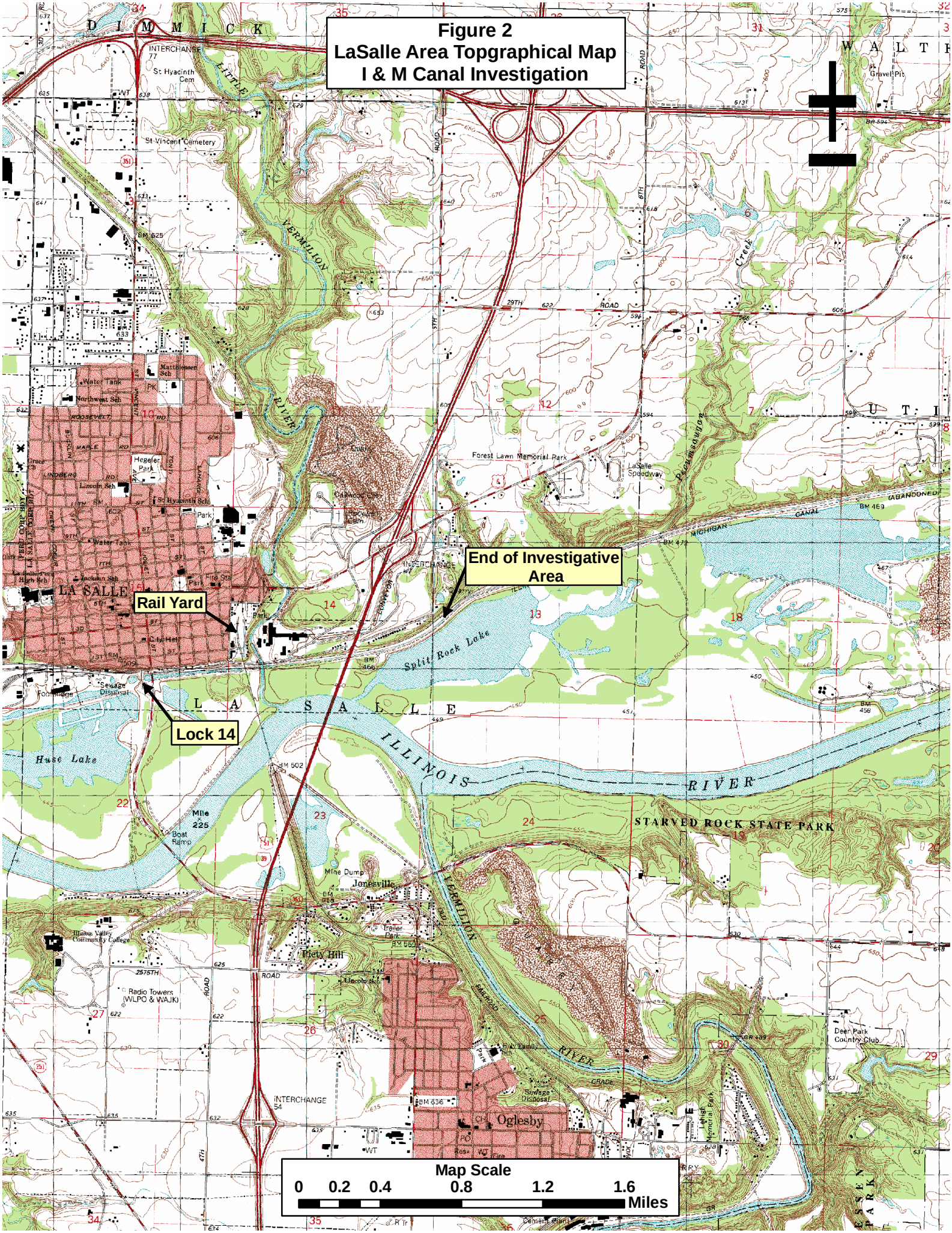


Figure 2
LaSalle Area Topgraphical Map
I & M Canal Investigation
End of Investigative Area
Rail Yard
Lock 14
LA SALLE
Split Rock Lake
ILLINOIS RIVER
STARVED ROCK STATE PARK
Huse Lake
Jonesville
Oglesby
Map Scale
0 0.2 0.4 0.8 1.2 1.6
Miles

Figure 3
I & M Canal Investigative Area
LaSalle, Illinois
June 19 - 21, 2006

For a more detailed map containing specific XRF and Sample Identification Numbers within the Rail Road Yard to the I & M Canal refer to Figure 6.

For a more detailed map containing specific XRF and Sample Identification Numbers from the Rail Road Bridge to Split Rock Lake refer to Figure 5.

For a more detailed map containing specific XRF and Sample Identification Numbers from Lock 14 to the Railroad Bridge refer to Figure 4.

Map Scale

0 0.05 0.1 0.2 0.3 0.4 Miles

Figure 4
Sample Location Map
Lock 14 to Rail Road Bridge
I & M Canal
June 19 - 21, 2006

1st Street

Canal Street

Rail Road Bridge

Sed. 1A
Sed. 1B
Sed. 1C
Sed. 1D
X212

T102

Sed. 2A

Lock 14

Sed. 3A
Sed. 3B
Sed. 3C

Sed. 4A

Sed. 5A
Sed. 5B
Sed. 5C
Sed. 5D

Sed. 6A

T103

Sed. 7A
Sed. 7B
Sed. 7C

Sed. 8A

Sed. 9A
Sed. 9B
Sed. 9C
Sed. 9D

T104

Sed. 10A

Sed. 11A
Sed. 11B
Sed. 11C
X201
X213

Sed. 12A

Sed. 13A
Sed. 13B
Sed. 13C
X202

Sed. 14A

Route 351

Map Scale
0 0.02 0.04 0.08 0.12 0.16
Miles

Figure 5
Sample Location Map
Rail Road Bridge to Split Rock Lake
I & M Canal
June 19 - 21, 2006

Interstate 39

Split Rock Lake

Sed. 16A

T105

Sed. 15A
Sed. 15B
Sed. 15C
Sed. 15D

Sed. 17A

Sed. 18A
Sed. 18B
Sed. 18C
Sed. 18D

Sed. 19A
X203

Sed. 20 A

Sed. 21A
Sed. 21B
Sed. 21C
Sed. 21D
X204

Sed. 22A
Sed. 22B
Sed. 22C
Sed. 22D
X205

Sed. 23A

Sed. 24A
Sed. 24B
Sed. 24C
Sed. 24D
X206

Sed. 25A

Sed. 26A
Sed. 26B
Sed. 26C
X207

Sed. 27A

Sed. 28A
Sed. 28B
Sed. 28C
Sed. 28D
X208

Sed. 29A

Sed. 30A
Sed. 30B
Sed. 30C
Sed. 30D
X209

Sed. 31A

Sed. 32A
Sed. 32B
Sed. 32C
Sed. 32D
X210

Sed. 33A

Sed. 34A
Sed. 34B
Sed. 34C
Sed. 34D
X211

Sed. 35A

Map Scale

0 0.0375 0.075 0.15 0.225 0.3 Miles


Figure 6
Sample Location Map
Areas Adjacent to I & M Canal
June 19 - 21, 2006
5th Street
4th Street
3rd Street
2nd Street
1St Street
Canal Street
XRF 6
XRF 7
XRF 8
XRF 10
XRF 9
XRF 11
XRF 12
XRF 13
XRF 14
XRF 15
XRF 42
XRF 16
XRF 17
XRF 43
XRF 44
XRF 19
X102
XRF 45
XRF 18
XRF 20
XRF 46
XRF 47
X103
XRF 21
XRF 22
XRF 23
XRF 48
XRF 49
XRF 25
XRF 24
XRF 26
XRF 50
X104
XRF 51
XRF 28
XRF 27
XRF 52
XRF 53
XRF 29
XRF 32
XRF 30
XRF 31
X101
T101
XRF 33
XRF 34
XRF 54 and XRF 55
XRF 35
XRF 36
XRF 64
XRF 58
X105
XRF 56
XRF 57
XRF 59
XRF 60
XRF 63
XRF 61
XRF 62
XRF 149
XRF 145
XRF 148
XRF 147
XRF 146
Map Scale
0 0.025 0.05 0.1 0.15 0.2
Miles

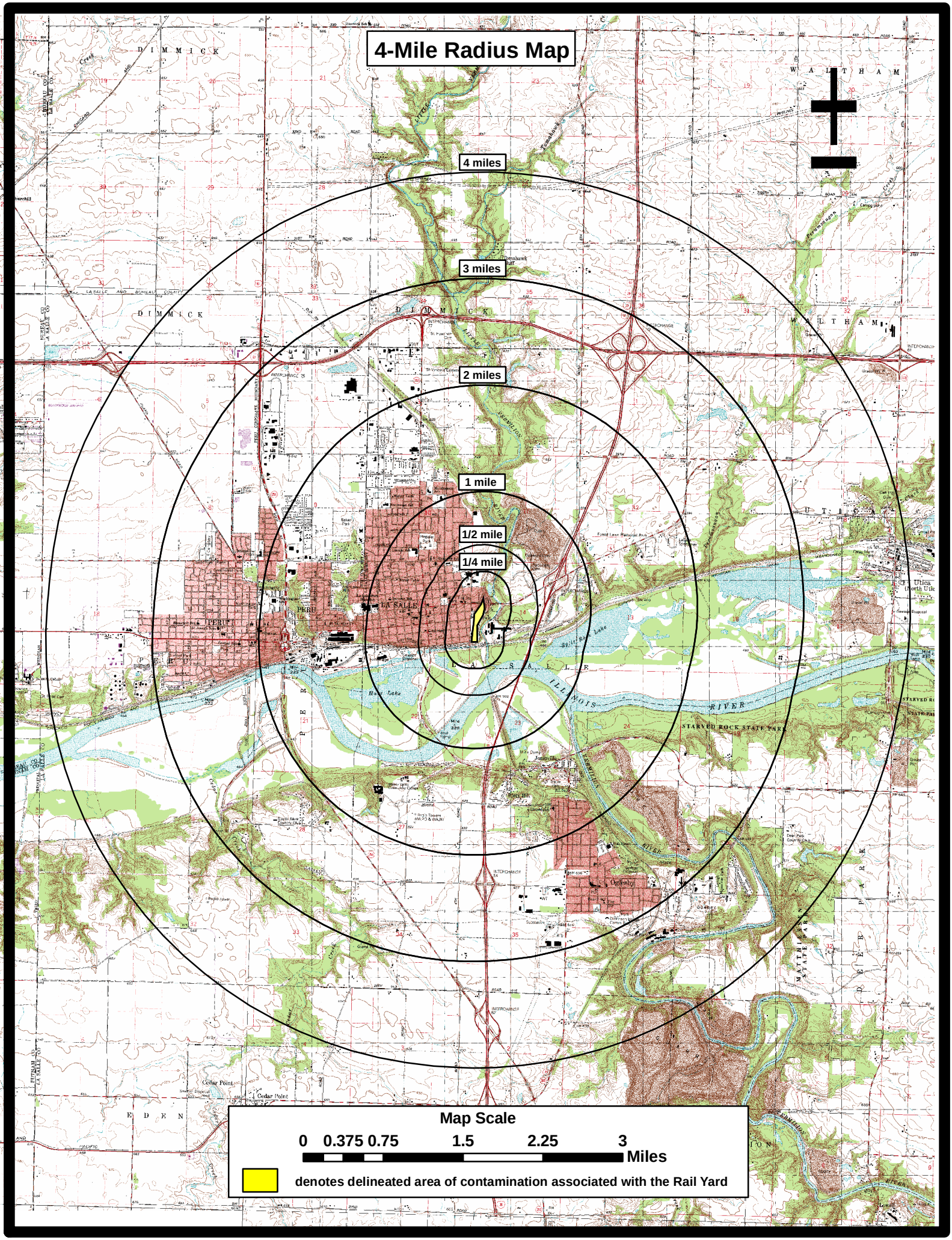
Figure 7
Zinc Concentrations
Rail Road Yard
and
I & M Canal
LaSalle, Illinois

Legend

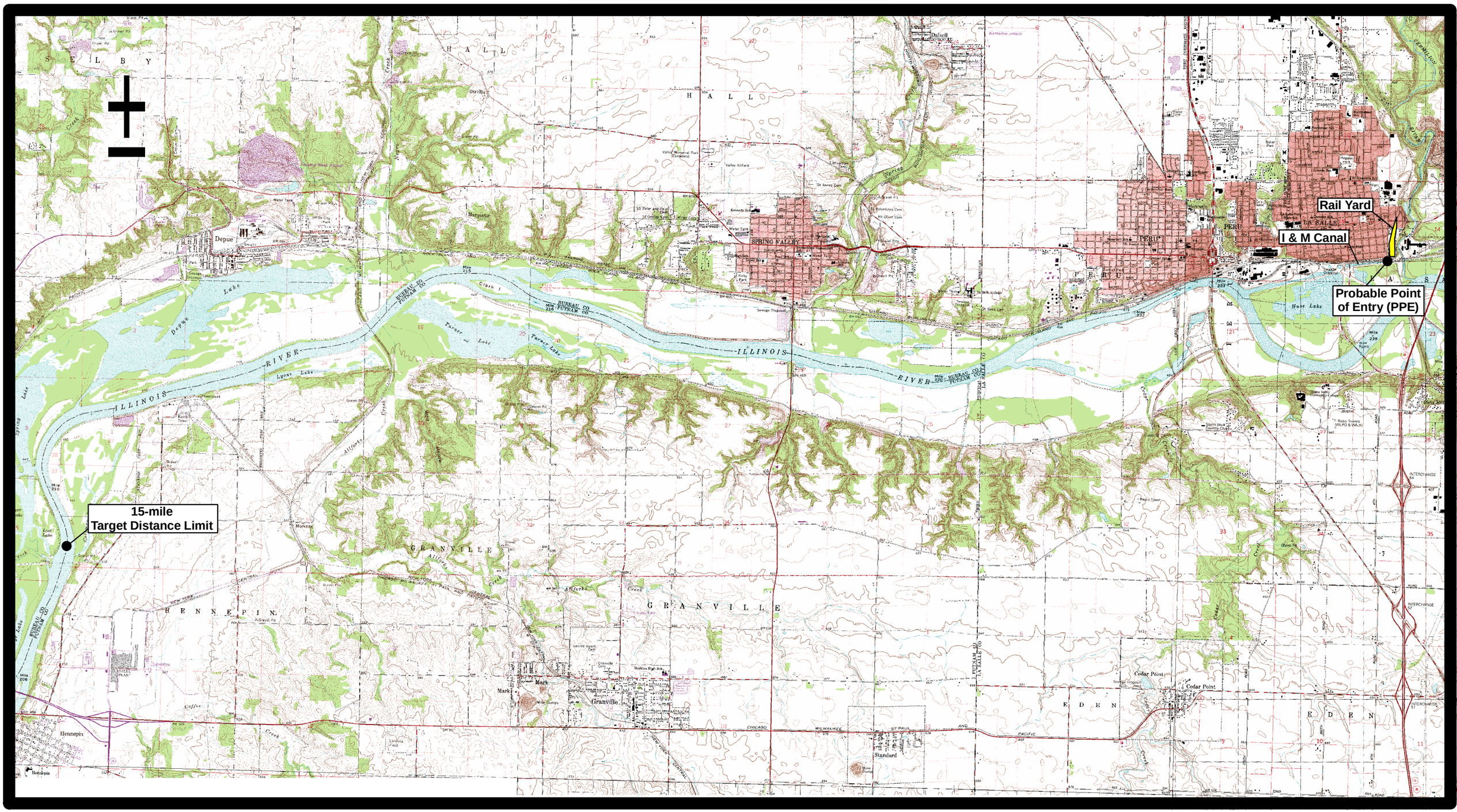
- Below 500 ppm
- 501 - 1000 ppm
- 1001 - 2000 ppm
- 2001 ppm and Above

Map Scale

0 0.05 0.1 0.2 0.3 0.4 Miles


4-Mile Radius Map
4 miles
3 miles
2 miles
1 mile
1/2 mile
1/4 mile
Map Scale
0 0.375 0.75 1.5 2.25 3
Miles
denotes delineated area of contamination associated with the Rail Yard

15-Mile Surface Water Route Map



Map Scale

0 0.5 1 2 3 4 Miles